

Title (en)

Device and method for controlling fault-free transmissions over an optical network

Title (de)

Vorrichtung und Verfahren zur Kontrolle einer fehlerfreien Übertragung in einem optischen Netzwerk

Title (fr)

Dispositif et méthode pour le contrôle d'une transmission correcte dans un réseau optique

Publication

EP 1037087 A1 20000920 (EN)

Application

EP 00102447 A 20000204

Priority

US 26374999 A 19990305

Abstract (en)

An apparatus and a method for controlling transmissions over an optical signaling network include one or more traffic detectors (30, 38, 42 and 44; 41 and 43) that are connected to an optical switch to receive incidentally reflected light when the switch is in a transmissive state. The switch is in the transmissive state when a fluid fills a fluid-manipulable chamber (32), but is in a reflective state when the chamber is free of fluid. The apparatus includes two inputs (16 and 20; 17 and 21) and two outputs (18 and 22; 19 and 23). Typically, the inputs and outputs are waveguides having an index of refraction which approximates the index of refraction of the fluid. The traffic detectors monitor light which is incidentally reflected at interfaces of the waveguides with the chamber. Under fault-free conditions in which signal transmissions are detected to be normal, a first input is connected to a first output and a second input is connected to a second output. However, when a fault condition is detected, the two inputs exchange outputs by reversing the state of the optical switch. In the preferred embodiment, the fault-free condition is one in which the switch is in the reflective state. However, the reflective state is disabled and the transmissive state is established if a fault condition is detected. A prolonged absence of signal transmissions along one of the inputs is indicative of a fault condition. With the switch in the transmissive state, incidentally reflected light is monitored to detect a return to the fault-free condition. The outputs are again exchanged upon recognition of the fault-free condition. Optionally, the outputs are monitored to detect reverse driven "request for resumption" signals, and the reflective state is established if reverse driven signals are detected on both outputs, regardless of the indication of a fault along one or both of the inputs. In a second embodiment, the fault-free condition establishes a transmissive state, with incidentally detected light being monitored to determine if a fault condition requires a change to the reflective state. <IMAGE>

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Citation (search report)

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